EVALUATING THE SATISFACTION AND QUALITY OF FITS FLIGHT TRAINING

This study evaluated pilot satisfaction and the quality of training received in FAA/Industry Training Standards (FITS) flight training versus non-FITS flight training. Data was collected in a central database with a data collection instrument open to FITS and non-FITS trained pilots. The results of this study are reported herein.

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May, 2007

Executive Summary

A central database was established and a data collection instrument was developed to study pilot satisfaction and the quality of FITS versus non-FITS flight training. The analysis of the data found 24 of the 29 measurements showed significant differences between the two training methods. A closer examination of the data showed 19 measurements were significant and important. These significant and important measurements reflect strong satisfaction with the FITS flight training and these measurements reflect FITS training was high quality.

Introduction

A. Purpose:

The purpose of this document is to report the findings of a study of pilot's satisfaction and the quality in FITS versus non-FITS flight training. Task 6 (FY04) required the establishment of a central database for students trained under FAA/Industry Training Standards (FITS) to compare to traditional training programs for continuous assessment. Twenty-four measurements in the questionnaire developed for the data collection showed significantly higher satisfaction by the pilots receiving FITS training. A more complete discussion of the findings is presented later.

B. Discussion:

1. The FITS program promises to improve safety through FITS training methods. One way to evaluate the success of the research is to develop a database for longitudinal study of students who receive FITS training. Working together with owner/pilot organizations, OEM's, and training providers, the FITS team will develop and maintain a database of all FITS graduates for comparison with similar non-FITS populations.

2. The effectiveness of FITS has been verified in three independent studies. These three studies were a) Evaluating the Effectiveness of FITS Training, b) FITS Combined Task 1 & 2 Final Report for the Embry Riddle Aeronautical University Effort, and c) Ab Initio Training in the Glass Cockpit Era: New Technology Meets New Pilots. These studies were conducted by the University of North Dakota, Embry Riddle Aeronautical University, and Middle Tennessee State University respectively. While the findings in these studies awaits additional validation, the FITS research team has continued its efforts to test the tenets of FITS including scenario-based training (SBT), learner-centered grading (LCG), and single-pilot resource management (SRM).

This effort includes a data collection instrument open to all general aviation (GA) pilots. The findings of this data collection instrument are presented in this report.

C. Tasking:

Establish a central database for students trained under FITS to compare to traditional training programs for continuous assessment of the programs.

D. Subtasks:

1. Contact all FITS training providers and develop a data collection methodology.
2. Work with the appropriate FAA offices to develop the database.
3. Publish a database of FITS trained pilots.
4. Develop a website to make the data available to qualified researchers.
5. Analyze the data obtained and compare it to appropriate non-FITS control groups.
6. Publish the findings.

E. Implementation:

An online data collection site was developed and implemented November 2005 after a questionnaire was developed and refined by the FITS research team. Initial data collection was accomplished with a paper copy of the questionnaire. These data collection instruments were hand entered into the database through April of 2006. They account for roughly half of the data collected. Late 2006 demographic questions were added to the questionnaire and the data collection site was made available to the general public through advertisement by several general aviation organizations and the FAA. Two hundred and seventy-five pilots participated and 273 completed the data collection instrument. Two data collection questionnaires were not completed and did not produce usable data; therefore, they were eliminated from the analysis.

F. Analyses:

1. Two hundred and seventy-three pilots completed the data collection instrument, of these 177 had received FITS accepted training and 96 had not. Twenty-four measurements showed significantly higher satisfaction and quality of training by the pilots receiving FITS training at an alpha level of 0.05. However, it can be argued that a Type I error could occur when 29 measurements are made. A conservative approach was taken in this study to guard against Type I errors. This was accomplished by using Bonferroni's adjustment. That is, to maintain an alpha level of 0.05 for 29 tests, a significance of 0.001724138 or less and a t –value equal to or greater

than 2.9506 can be used. Five of 24 significant measurements did not meet Bonferroni adjustment criteria; thus, these measurements were not considered significant and important in the conclusions of this study. Thirteen of the significant and important measurements showed large omega squared effects, 3 showed medium, and 3 showed small. The omega squared is an estimate of the dependent variance, measures of training satisfaction and quality, accounted for by the independent variable, method of training. These tests, the Bonferroni's adjustment and omega squared effect, increase the degree of confidence in the results being reported.
2. The data collection instrument included 10 demographic, 29 quality of training, and five questions solicited additional comments from the participants. A copy of the data collection instrument is included in Appendix A. The demographic questions included a question to show whether the pilot had received FITS training. This question was used to assign the participants to the two groups compared, FITS (group 1) versus non-FITS (group 2), in the data analysis.

G. Descriptive Data:

The participants were pilots receiving FITS accepted factory flight training in technically advanced aircraft (TAA) and general aviation pilots receiving non-FITS accepted flight training in TAA, aircraft equipped with GPS and moving maps, and non-TAA aircraft. One hundred and thirty-one of the participants completed a paper copy of the data collection instrument. The paper copy did not include the demographic questions provided in the online version; thus, sex, age, flight experience, etc., so this data is missing. The paper data collection instruments were completed by pilots at the conclusion of a FITS accepted factory training program; thus, the type of training, FITS versus non-FITS, could be determined.

H. Findings of the Analyses:

A t-test analysis of the 29 questions, dependent variables, was performed. Again, five were not significant and five others did not meet Bonferroni's adjustment criteria. The 29 questions were divided into six sections within the data collection instrument; therefore, the results will be presented in the same six sections. Questions on the data collection instrument can be related to the questions in the table (see Appendix A), the question range is provided in the title and the questions are presented in order.

1. The first section addressed the pilots' satisfaction with the training and its similarity to other training the pilot had received, see table 1. All five measurements were significant (p = .000); however, question 4, training was similar to other general aviation training, did not meet Bonferroni's adjustment criteria, see table 2. Bonferroni's adjustment requires the t-value to be equal to or greater than 2.9506, while question 4 shows t = 2.734. Questions 1, 2, and 3 showed large omega squared effects while questions 4 and 5 were small, see table 2. The omega squared

effect assumed the large effect was equal to or greater than 0.1, the medium effect was less than 0.1 and equal to or greater than 0.07, and the small effect was less than to 0.07 and equal to or greater than 0.01.

Table 1. Training Satisfaction (questions 1 through 5)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	variances	F	*p*	t	df	MD
Enjoyed	Grp 1	177	4.66	0.58	assumed	111.580	.000	10.002	271	1.43
	Grp 2	96	3.23	1.73	not assumed			7.857	106.934	1.43
Clear	Grp 1	177	4.56	0.60	assumed	95.039	.000	9.925	271	1.40
	Grp 2	96	3.17	1.69	not assumed			7.843	108.190	1.40
Prepared	Grp 1	177	4.71	0.73	assumed	89.598	.000	9.216	271	1.40
	Grp 2	96	3.31	1.76	not assumed			7.445	113.103	1.40
Similar GA	Grp 1	177	3.28	1.15	assumed	29.415	.000	2.734	271	0.49
	Grp 2	96	2.79	1.78	not assumed			2.417	138.956	0.49
Similar Non-GA	Grp 1	177	3.06	1.42	assumed	27.478	.000	3.595	271	0.71
	Grp 2	96	2.34	1.81	not assumed			3.349	159.484	0.71
	Total	273								

Table 2. Training Satisfaction (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Enjoyed	.000	10.002	106.934	*	0.266	Large
Clear	.000	9.925	108.190	*	0.263	Large
Prepared	.000	9.216	113.103	*	0.235	Large
Similar GA	.000	2.734	138.956		0.023	
Similar Non-GA	.000	3.595	159.484	*	0.041	Small

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

2. Table 3 shows the data for questions 6 through 9. These questions address the effectiveness of the training. Again, all measurements of effectiveness are significant (p = .000) and all meet Bonferroni's adjustment criteria with t = 6.810, 7.672, 8.483, and 7.348, respectively. The omega squared effect was large for all three effectiveness questions, see table 4.

Table 3. Training Effectiveness (questions 6 through 9)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	Variances	F	*p*	t	df	MD
Effective	Grp 1	177	4.40	0.81	assumed	43.581	.000	6.810	271	1.01
	Grp 2	96	3.39	1.64	not assumed			5.662	120.278	1.01
Helped	Grp 1	177	4.52	0.65	assumed	84.240	.000	7.672	271	1.11
	Grp 2	96	3.41	1.72	not assumed			6.110	109.889	1.11
Discussion	Grp 1	177	4.48	0.77	assumed	70.081	.000	8.483	271	1.28
	Grp 2	96	3.20	1.72	not assumed			6.936	115.986	1.28
Scenario	Grp 1	177	4.51	0.99	assumed	38.178	.000	7.348	271	1.20
	Grp 2	96	3.31	1.70	not assumed			6.335	130.710	1.20
	Total	273								

Table 4. Training Effectiveness (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Effective	.000	6.810	120.278	*	0.142	Large
Helped	.000	7.672	109.889	*	0.174	Large
Discussion	.000	8.483	115.986	*	0.206	Large
Scenario	.000	7.348	130.710	*	0.162	Large

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

3. Questions 10 through 13 assessed single-pilot resource management (SRM). Table 5 shows that SRM was explained, integrated into ground and flight training, and pilots felt significantly (p = .000) more comfortable in FITS accepted training programs with Levene's test for equality of variances equal to 32.208, 35.963, 34.679 and 40.988, respectively. Furthermore, the t value ranged between 5.645 and 5.968 in the t-test for equality of means. These values are well above the minimum criteria to satisfy Bonferroni's adjustment. Again, all four SRM questions exhibited large omega squared effects, see table 6.

Table 5. Single-pilot Resource Management Training (questions 10 through 13)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	Variances	F	*p*	t	df	MD
Explained	Grp 1	177	4.26	1.09	assumed	32.208	.000	5.624	271	0.97
	Grp 2	96	3.29	1.75	not assumed			4.933	136.276	0.97
Integrated into grn	Grp 1	177	4.21	1.09	assumed	35.963	.000	5.968	271	1.04
	Grp 2	96	3.18	1.78	not assumed			5.202	134.199	1.04
Integrated into flt	Grp 1	177	4.29	1.08	assumed	34.679	.000	5.669	271	0.98
	Grp 2	96	3.31	1.77	not assumed			4.945	134.427	0.98
Feeling	Grp 1	177	4.34	1.02	assumed	40.988	.000	5.769	271	0.98
	Grp 2	96	3.35	1.81	not assumed			4.935	128.357	0.98
	Total	273								

Table 6. SRM Training (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Explained	.000	5.624	136.276	*	0.100	Large
Integrated grn	.000	5.968	134.199	*	0.112	Large
Integrated flt	.000	5.669	134.427	*	0.102	Large
Feeling	.000	5.769	128.357	*	0.105	Large

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

Table 7. Learner-Centered Grading (questions 14 through 18)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	Variances	F	*p*	t	df	MD
Progress	Grp 1	177	3.36	1.32	assumed	17.956	.000	4.654	271	0.86
	Grp 2	96	2.50	1.67	not assumed			4.337	159.681	0.86
Involved	Grp 1	177	3.73	1.26	assumed	15.027	.000	3.058	271	0.56
	Grp 2	96	3.18	1.72	not assumed			2.792	151.065	0.56
Process	Grp 1	177	3.70	1.25	assumed	14.508	.000	2.641	271	0.48
	Grp 2	96	3.22	1.73	not assumed			2.407	150.329	0.48
Used Terms	Grp 1	177	3.44	1.37	assumed	8.521	.004	1.531	271	0.29
	Grp 2	96	3.15	1.76	not assumed			1.424	158.767	0.29
Meaning of terms	Grp 1	177	3.81	1.22	assumed	20.281	.000	3.722	271	0.67
	Grp 2	96	3.15	1.72	not assumed			3.369	147.584	0.67
	Total	273								

4. Questions 14 through 18 assessed learner-centered grading (LCG). The results shown in Table 7 again reflect all measurements in LCG were significantly different, ranging between .000 and .004 significance. Questions 16 and 17, process and using manage/decide, explain, practice,

perform the grading scale is a better way to evaluate progress, shows the significance at .000 (t-value at 2.641) and .004 (t-value at 1.531), respectively. These values do not meet the Bonferroni's adjustment criteria, so they will not be used in the final analysis, see table 8. The omega squared effect of question 14, progress was evaluated differently, was medium while questions 15 and 18 were small. Question 15 asked if the pilot actively participated in the evaluation progress and question 18 asked if the pilot understood the meaning of manage/decide, explain, practice, and perform as they related to the grading scale.

Table 8. Learner-Centered Grading (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Progress	.000	4.654	159.681	*	0.070	Medium
Involved	.000	3.058	151.065	*	0.029	Small
Process	.000	2.641	150.329		0.021	
Used Terms	.004	1.531	158.767		0.005	
Meaning of Terms	.000	3.722	147.584	*	0.045	Small

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

5. Training integration is assessed in questions 19 through 22, see table 9. All measurements of training integration were significant and meet Bonferroni's adjustment criteria, see table 10. Furthermore, questions 19 and 22 had medium omega squared effects, while questions 20 and 21 had large effects. Question 19 asked if the pilot changed the way he/she flew due to the training. Question 22 asked if the training improved the pilot's decision-making and judgment skills. Questions 20 and 21 asked if the training improved the way the pilot used the aircraft systems and the way the pilot used available information, respectively.

Table 9. Training Integration (questions 19 through 22)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	Variances	F	*p*	t	df	MD
Changed	Grp 1	177	4.05	1.12	Assumed	39.598	.000	5.224	271	0.93
	Grp 2	96	3.11	1.82	not assumed			4.567	135.236	0.93
Systems	Grp 1	177	4.25	0.67	assumed	91.687	.000	8.879	271	1.31
	Grp 2	96	3.21	1.75	not assumed			7.082	110.226	1.31
Information	Grp 1	177	4.53	0.62	assumed	87.547	.000	7.722	271	1.10
	Grp 2	96	3.43	1.75	not assumed			5.944	108.174	1.10
Decision	Grp 1	177	4.28	0.87	assumed	49.125	.000	5.308	271	0.84
Judgment	Grp 2	96	3.44	1.76	not assumed			4.414	120.326	0.84
	Total	273								

Table 10. Training Integration (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Changed	.000	5.224	135.236	*	0.087	Medium
Systems	.000	8.879	110.226	*	0.221	Large
Information	.000	7.772	108.174	*	0.169	Large
Decision Judgment	.000	5.308	120.326	*	0.090	Medium

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

6. Table 11 shows the training methods and simulation tools used in the training programs. These are questions 23 through 29. None of these measurements were both significant and met the Bonferroni's adjustment criteria, see table 12. Additionally, none had a reportable omega squared effect. These questions will be discussed more in the results section.

Table 11. Training Methods and Tools (questions 23 through 29)

					Equal	Levene's Test		t-test for Equality		
		N	Mean	SD	Variances	F	*p*	t	df	MD
Pre-Materials	Grp 1	177	3.23	1.78	Assumed	0.304	.582	2.795	271	0. 62
	Grp 2	96	2.61	1.66	not assumed			2.853	206.957	0.62
Lectures	Grp 1	177	3.58	1.62	Assumed	0.827	.364	3.200	271	0.67
	Grp 2	96	2.91	1.71	not assumed			3.148	185.965	0.67
Discussion	Grp 1	177	3.72	1.54	Assumed	8.249	.004	4.579	271	0.95
	Grp 2	96	2.77	1.78	not assumed			4.391	172.883	0.95
FTD	Grp 1	177	1.32	1.23	Assumed	5.993	.015	-6.326	271	-1.47
	Grp 2	96	2.70	2.70	not assumed			-6.555	215.764	-1.47
PC	Grp 1	177	2.77	2.77	Assumed	1.554	.214	2.508	271	0.57
	Grp 2	96	2.20	2.20	not assumed			2.605	217.185	0.57
Glass	Grp 1	177	2.44	2.44	Assumed	3.550	.061	-0.94	271	-0.023
	Grp 2	96	2.46	2.46	not assumed			-0.96	208.573	-0.023
SBT Flight	Grp 1	177	3.67	3.67	Assumed	1.358	.245	4.340	271	0.93
	Grp 2	96	2.74	2.74	not assumed			4.294	189.149	0.93
	Total	273								

Table 12. Training Methods and Tools (Bonferroni Adjustment and Omega Squared)

	p	t	df	Bonferroni Adjustment	Ω^2	Ω^2 Effect
Pre-Materials	.582	2.795	206.957		0.024	Small
Lectures	.364	3.200	185.965		0.033	Small
Discussion	.004	4.579	172.883		0.068	Small
FTD	.015	-6.326	215.764		0.125	Large
PC-ATD	.214	2.508	217.185		0.019	Small
Glass	.061	-0.94	208.573		-0.004	
SBT Flight	.245	4.340	189.149		0.061	Small

Note: * Bonferroni's adjustment criteria meet (p <= .001724138 and t >= 2.9506).

I. Results:

1. The data collection instrument included 29 questions to determine the pilot's satisfaction and the quality of FAA/industry training standards (FITS) training programs versus non-FITS training. The analyses of the data show significantly higher pilot satisfaction and quality at the .05 alpha level. To preserve this level over the 29 measurements used in the study, the Bonferroni's adjustment was applied. This resulted in 24 measurements. Of these 24 measurements 19 measurements, in five of the six areas, showing significant differences between the FITS and non-FITS groups. These six areas included (a) training satisfaction, (b) training effectiveness, (c) single-pilot resource management, (d) learner-centered grading, (e) training integration, and (f) methods and tools.

2. The "methods and tools" area is the only area that did not show significant differences. Generally, the questions in this area assessed training methods and training devices that have not changed. Question 23 asked the pilot to rate pre-course training materials. Typically, training materials are not forwarded to pilots before the onsite training is provided for FITS or non-FITS training instances. Instructor lectures, question 24, likely have not changed either. This is likely caused by FITS's focus having been on flight rather than ground training. Question 25 asks the pilot to rate the instructor's scenario discussion. Until pilots understand the differences between the form of scenario-based instruction that is typically in widespread use today and the form of instruction advocated by the FITS research team, it is again unlikely that this question will measure what it was intended to measure. Normally, these widespread forms of instruction do not include judgment and decision-making training. Questions 26 through 28 ask about various simulation devices that can be used to enhance learning. None of these devices are in widespread use in TAA training; therefore, these questions will not be useable until the devices are in common use. Question 29 asks about the quality of the scenarios used in the flight training.

Again, pilots will not be able to judge the differences in the quality of the scenarios until they understand the scenarios as FITS intended to use them.

3. Table 13 shows a summary of the statistically significant findings. The 19 measurements shown are statistically significant and meet the Bonferroni's adjustment criteria. Table 13 also shows omega squared and the effect of this measurement. That is, a large effect is $\Omega^2 >= 0.1$, a medium effect is $\Omega^2 < 0.1$ and $\Omega^2 >= 0.07$, and a small effect is $\Omega^2 < 0.07$ and $\Omega^2 >= 0.01$. Omega squared is the percentage of variance in the measurement that is accounted for by the method of training. Of the 19 measurements meeting the Bonferroni's adjustment criteria, 13 have a large effect on the variance; three each have medium and small effects. None of the effects of the 19 measurements fall below the small effect threshold ($\Omega^2 < 0.01$).

Table 13. Summary of Statistically Significant Findings

Area	Question	Levene's Test F	Levene's Test *p*	t	Bonferroni Adjustment	Ω^2	Effect
Satisfaction							
	Enjoyed	111.580	.000*	10.002	**	0.266	Large
	Clear	95.039	.000*	9.925	**	0.263	Large
	Prepared	89.598	.000*	9.216	**	0.235	Large
	Similar NGA	27.478	.000*	3.595	**	0.041	Small
Effectiveness							
	Effective	43.581	.000*	6.810	**	0.142	Large
	Helped	84.240	.000*	7.672	**	0.174	Large
	Discussion	70.081	.000*	8.483	**	0.206	Large
	Scenario	38.178	.000*	7.348	**	0.162	Large
SRM							
	Explained	32.208	.000*	5.624	**	0.100	Large
	Intg. Grn	35.963	.000*	5.968	**	0.112	Large
	Intg. Flt	34.679	.000*	5.669	**	0.102	Large
	Feeling	40.988	.000*	5.769	**	0.105	Large
LCG							
	Progress	17.956	.000*	4.654	**	0.070	Medium
	Involved	15.027	.000*	3.058	**	0.029	Small
	Meaning	20.281	.000*	3.722	**	0.044	Small
Integration							
	Changed	39.598	.000*	5.224	**	0.087	Medium
	Systems	91.387	.000*	8.879	**	0.221	Large
	Information	87.547	.000*	7.722	**	0.169	Large
	Jdg. Decision	49.125	.000*	5.308	**	0.090	Medium

Note: * $p <= .05$. ** Bonferroni's adjustment criteria meet ($t >= 2.9506$ and $p <= .001724138$).

J. Conclusions:

The results reflected significant differences between the FITS and non-FITS training groups in 19 of the 29 measurements of satisfaction and quality of training. These 19 measurements of satisfaction and quality indicate that when the FITS tenets are incorporated in a flight training program the training is clearly better. When these results are considered with the results of previous studies of the effectiveness of FITS training, there is a clear indication that the tenets of FITS are taking the general aviation (GA) training standards in the right direction. It is easy to speculate that the increased satisfaction reflected in this study will lead to enhanced learning and that enhanced learning will lead to improved aviation safety. That is, when pilots, learners, are more satisfied with their training, they are more motivated to learn and when learners are more motivated to learn, learning is enhanced. Indeed, when pilots learn more they are prepared to make better decisions. In other words, they have a better foundation to base their decisions on.

K. Recommendation:

1. Follow on studies should be conducted to determine how various simulation devices will effect pilot satisfaction and the quality of training. The sixth area, methods and tools, failed to show any significant measurements, in part we believe, because many participants are unfamiliar with the FITS tenets and what they mean and because TAA simulation devices are not in widespread use. As the understanding of FITS tenets increases and as wider use of simulation devices occurs, these measurements will become more useful.

2. Additional studies are needed to determine if a stronger foundation in aeronautical knowledge provided by the FITS method of training will be effective in improving GA safety. Furthermore, it needs to be determined if the practice and drill of judgment and decision-making called for in the tenets of FITS account for improvements in GA safety rate or the improved aeronautical knowledge foundation accounts for the improvements that are expected to occur.

3. Finally, the results reflected in this study clearly indicate that the tenets of FITS should be put into wider use. The results also reflect that continued research should be conducted to validate these findings this and the other FITS effectiveness studies. Additionally, continuing research is needed to refine the FITS tenets and their effectiveness in GA pilot training.

L. Other Recommendation:

A question about the effect of using teaching methods that integrate judgment and decision-making in the ground lessons associated with pilot training needs to be examined. That is, will

the effectiveness of the FITS tenets be yet again significantly improved if the teaching methods used in ground schools are based on problems rather than the traditional methods currently in use? Scenario-based training (SBT) works well in flight training and it has been shown to be effective in improving pilot performance, situational awareness, and aeronautical decision-making. SBT and other teaching methods using a problem as the bases for learning in ground schools has not been the emphasis of FITS. Arguably, the effects of practicing and drilling judgment and decision-making would be improved if the amount of practice and drill were increased. Their effects also need to be examined.

Appendix A
Data Collection Instrument

(See next page)

FITS Training Data Collection Instrument

Questions A through 29 must be answered to complete the survey.

Demographic Data - is needed to determine if there are age, experience, etc. differences.

	Male			Female		
A. Sex:	○			○		
	16-24	25-34	35-44	45-60	Over 60	
B. Age:	○	○	○	○	○	
	0 to 200	200 to 500	500 to 1000	1000 to 1500	1500 to 2500	Over 2500
C. Current flying experience (hours):	○	○	○	○	○	○
	Prvt	comm	CFI	ATP	CFI/ ATP	
D. Certificates held:	○	○	○	○	○	
	Personal	Corp/Bus	Comm	Airline		
E. Primary type of flying:	○	○	○	○		
	Yes			No		
F. One or more of the aircraft I fly is equipped with at least a moving map and an autopilot:	○			○		
	Yes	No	IP	NS		
G. Have you received FITS accepted training (Yes, No, IP [in progress], or NS [not sure or do not know]):	○	○	○	○		

	Yes	No
H. I have received formal training in the use of the aircraft automation including the autopilot:	○	○

	No	PFD	MFD	Both	NS
I. Is one or more of the aircraft you fly equipped with (No, PFD, MFD, Both, or NS [not sure or do not know]):	○	○	○	○	○

	Yes	No	NS
J. Is one or more of the aircraft you fly equipped with an autopilot and an ARNAV (Yes, No, or NS [not sure or do not know]):	○	○	○

Rate your agreement or disagreement to the following statements. **Please select your answer**	N/A	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I enjoyed this training.	○	○	○	○	○	○
2. I found the instructional material clear, easy to understand, and valuable to me.	○	○	○	○	○	○
3. I found the instructional staff well prepared and helpful.	○	○	○	○	○	○
4. I found the training methods were similar to other general aviation training I have received.	○	○	○	○	○	○
5. I found the training methods were similar to other non-GA training I have received.	○	○	○	○	○	○

Please select your answer	N/A	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6. These training methods were effective ways to learn pilot judgment and decision-making skills.	○	○	○	○	○	○
7. This training helped me learn to identify and use all available resources.	○	○	○	○	○	○
8. The ground training scenario discussions were realistic and useful.	○	○	○	○	○	○
9. The flight scenarios were realistic and useful.	○	○	○	○	○	○

Please select your answer ([click here for more information about SRM])	N/A	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

10. The instructor/s explained Single Pilot Resource Management (SRM).	○	○	○	○	○	○
11. The instructor/s integrated SRM into ground scenarios.	○	○	○	○	○	○
12. The instructor/s integrated SRM into the flight scenarios.	○	○	○	○	○	○
13. This SRM training made me feel more comfortable piloting a single-pilot aircraft.	○	○	○	○	○	○

Please select your answer	N/A	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14. My progress was evaluated differently than it has been in other training program/s.	○	○	○	○	○	○
15. I actively participated in the evaluation of my progress.	○	○	○	○	○	○
16. This evaluation process helped me understand and improve my performance.	○	○	○	○	○	○
17. Using manage/decide, explain, practice, and perform is a better way to evaluate progress.	○	○	○	○	○	○
18. I understand the meaning of manage/decide, explain, practice and perform.	○	○	○	○	○	○

Please select your answer	N/A	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
19. Due to this training, I will change the way I fly single-pilot technically advanced aircraft.	○	○	○	○	○	○
20. This training will improve the way I use aircraft systems.	○	○	○	○	○	○
21. This training will improve the way I use available information.	○	○	○	○	○	○
22. This training improved my decision and judgment skills.	○	○	○	○	○	○

RATE THE VARIOUS PARTS OF THIS TRAINING

Please check your answer: Not Applicable/Outstanding/Excellent/Good/Fair/Poor

Please select your answer	N/A	Outstanding	Excellent	Good	Fair	Poor

23. Pre-Course Training Materials.	○	○	○	○	○	○
24. Instructor's Lectures.	○	○	○	○	○	○
25. Instructor-led Scenario Discussion.	○	○	○	○	○	○
26. FTD-based Simulations.	○	○	○	○	○	○
27. PC-based Simulations.	○	○	○	○	○	○
28. Glass Cockpit Hardware Mockups.	○	○	○	○	○	○
29. Scenarios-based Flight Training.	○	○	○	○	○	○

If you would like to provide additional information to help us improve FITS training, the following space is for additional comments. Note: additional comments are not necessary to complete the survey. .

Skip this section

Please describe training similarities or differences from previous training

How would you improve the ground and/or flight scenarios?

Define Single-Pilot Resource Management (SRM) and describe how you might integrate scenario lessons and SRM into your flying.

How would you improve the scenario grading scale/system?

List the three best things about the training:

List the three things you would change to improve the training.

Please make any other comments about the training that you would like to in the space provided.

Thank you for participating in this questionnaire.

Would you be willing to participate in a brief follow-up mail (e-mail) questionnaire conducted by the

FITS research team? If so, please provide the following information. You will not be called **.** This list will be used for research purposes only and will not be used for solicitations. You will be contributing to the improvement of training methodologies.

Note: it is not necessary to provide this information to complete the survey.

Name:

Address: City: State:

Zip Code:

Email:

Submit

Thank you for participating. You may scroll through the questionnaire to review and change any of your responses. Once you are satisfied with your responses, please select Submit.

Questionnaire developed by: FITS Research Team
Site developed by: Dr. Charles L. Robertson, Associate Professor of Aviation, University of North Dakota, Grand Forks, North Dakota 58202